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A SCHOOL FOR ALL SEASONS.

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THIS REPORT DESCRIBES A HIGH SCHOOL IN CALIFORNIA INCORPORATING FLEXIBILITY TO ACOMMODATE ALMOST ANY FORESEEABLE EDUCATIONAL CHANGE. STUDENTS MOVE IN THE MIDST OF A COMPACT ENVIRONMENT IN WHICH ALMOST EVERY SQUARE FOOT OF SPACE IS USABLE ACADEMIC SPACE. EACH DEPARTMENT SUBCOURT COMPLEX IS SITUATED SO AS TO BRING ALL STUDENTS INTO SOME CONTACT WITH ALL THE ACADEMIC DISCIPLINES SOMETIME DURING THE COURSE OF EACH DAY. THE NEARLY 2.5 MILLION CU. FT. INTERIOR IS CLOSED OFF FROM THE OUTSIDE BY SOLID WALL. SKYLIGHTS, A PROFUSION OF PLANTINGS, AND CO-ORDINATED COLORS WITH COLOR ACCENTS ATTEMPT TO PROVIDE A BUILT-IN OUTDOOR ENVIRONMENT. THE STRUCTURAL FRAME IS A REINFORCED PRESTRESSED CONCRETE. A 5-FOOT GRID IS THE BASIC MODULE USED THROUGHOUT THE BUILDING. ALL INTERIOR WALLS ARE NON-LOAD BEARING AND MADE UP OF DEMOUNTABLE DOUBLE STEEL PANELS. THE WALLS ARE INSTALLED UNDER A SUSPENDED CEILING PLENUM WHICH HOUSES THE UTILITIES AND ELECTRICAL WIRING. ACCORDION AND FOLDING WALLS ADD INSTANT FLEXIBILITY TO THE ARRANGEMENT POTENTIAL OFFERED BY THE DEMOUNTABLE STEEL PANELS. TEMPERATURE CONTROL IS ACHIEVED WITHOUT A CENTRAL HEATING SYSTEM. A FEW ELECTRICAL HEATING PANELS ARE SPOTTED IN CRITICAL AREAS. THE PRINCIPAL SOURCE OF HEAT DERIVES FROM THE BODY TEMPERATURE OF THE BUILDING INHABITANTS AND THE LIGHTING. CARPETING IS AN ESSENTIAL FEATURE OF THE OPEN PLAN CONCEPT. THE POTENTIAL OFFERED BY THIS FACILITY FOR FLEXIBLE SCHEDULING AND CURRICULUM EXPERIMENTATION IS ALMOST LIMITLESS. THE REPORT INCLUDES BUILDING AND CARPETING COSTS, PHOTOGRAPHS, AND FLOOR PLAN. (RK)

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A SCHOOL FOR ALL SEASONS

If you are looking for a secondary school design that embodies the open forum spirit of education today, that is as physically appropriate to frozen plains and burning desert as to the California coast, and that is flexible enough to accommodate almost any foreseeable educational change, you might find one point of discovery in Costa Mesa, California. Estancia High School, a recent addition to the Newport Harbor Union High School District, is built to just such a design by Corona del Mar architects William Blurock and Associates. Instead of pursuing their education from building to building under covered walkways or down long hallways into closed siderooms, students here move in the midst of a compact environment in which almost every square foot of space is usable academic space. From almost anywhere in the vast central "Great Court" at the heart of this school the student is in immediate touch with the entire range of available educational offerings. Each departmental subcourt complex is so situated as to bring all students into some contact with all the academic disciplines sometime during the course of each day, however casually.

Business Department court as seen from Great Court. All such courts are display as well as academic areas and an open invitation to students in transit from class to class.

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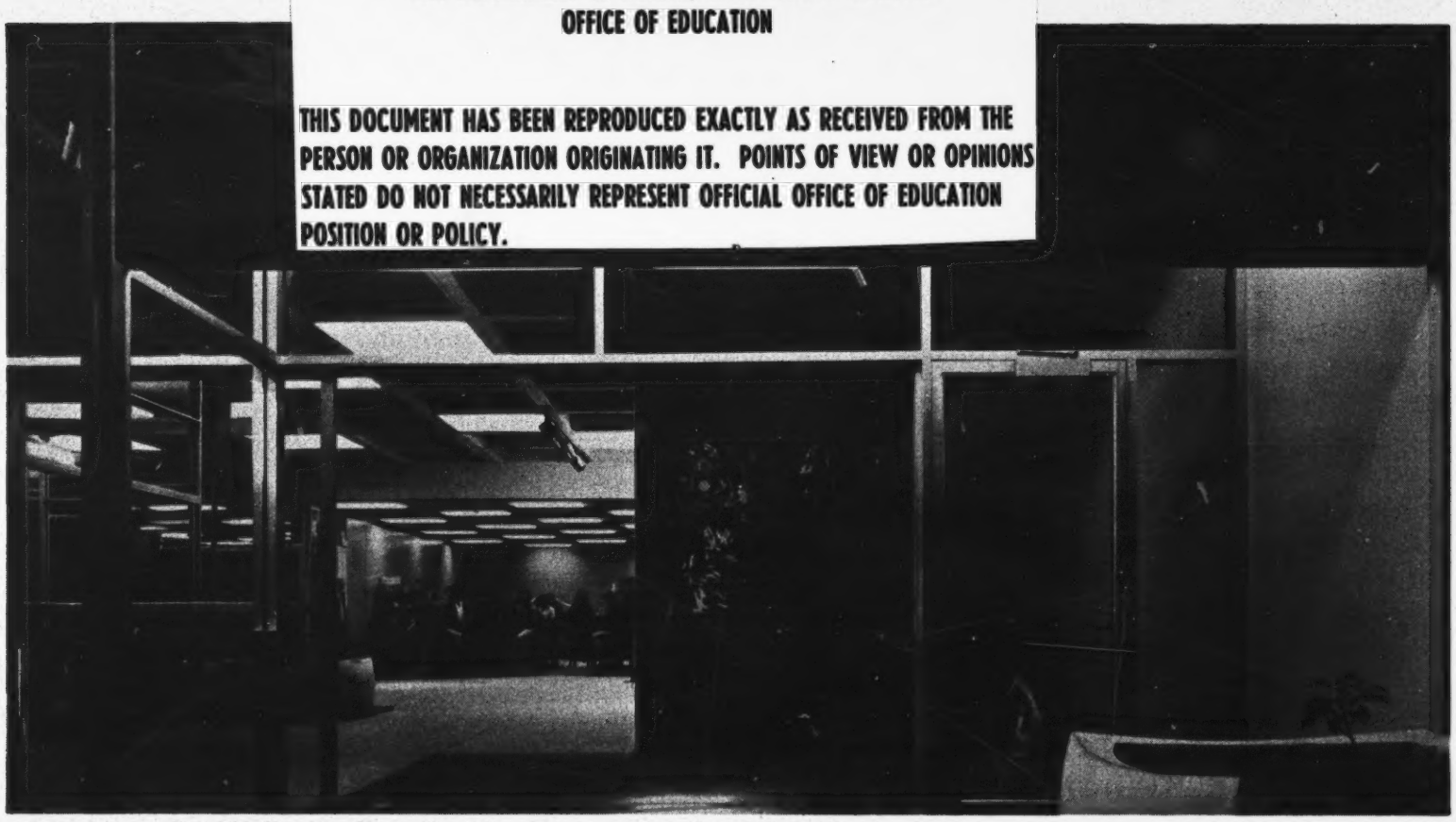


Abstract murals in brilliant color and with an appropriate theme line the Great Court at the entrance to each department. This view looks into Art Department from Great Court. (Photos by Julius Shulman.)

Large lecture hall with fold-back rear wall is in Great Court. At photo left beyond lockers is library exterior at forward end of this vast covered forum.

The Great Court Concept

The covered Great Court at Estancia High School is the forum to the surrounding academic community it serves. It is the main circulation area and gathering place of the student and teacher population. It contains the largest meeting place in the community—a 300-seat lecture hall with a folding rear wall that can be opened to provide space for seating 800. It also houses the three-level library and an audiovisual center, the repositories of major community-shared resources. In the departmental courts leading off the Great Court, the community's educational wealth is dispensed in exchange for student interest and effort in an environment uniquely appropriate to the particular department's academic wares. From every perspective within the total design, the environment offers the student constant encouragement to reach out for education.

Outdoors Built-In

Estancia High is a large school—big as all outdoors, but all indoors. Its single roof covers some 204,662 sq. ft. of floorspace, allowing a generous 102.3 sq. ft. per pupil for a total pupil capacity of 2,000. Except for the brief interruption of glass along the administration area of the school's perimeter, the nearly 2.5 million cu. ft. interior is closed off from the outside by solid wall. Still there is no feeling of confinement within this compact enclosed design. The architects have applied several other means than a generous allotment of space to successfully liberate this interior. The high deep-coffered ceiling exposed in all the courts is dotted with skylights and the descending light from all sources blends to create an effect as natural as daylight. Plantings in earth-filled floor spaces and large sculptured concrete planters occur frequently throughout the building to effectively distract the mind from the absence of windows to the outside. By alternating bright carpet with ceramic tile, concrete surfaces with planted earth, artificial light sources with natural light, and coordinated colors with color accents, the architects have built an environment that is not only spacious and comfortable but far more varied and interesting than the outside portions of the 43-acre site on which the school stands.

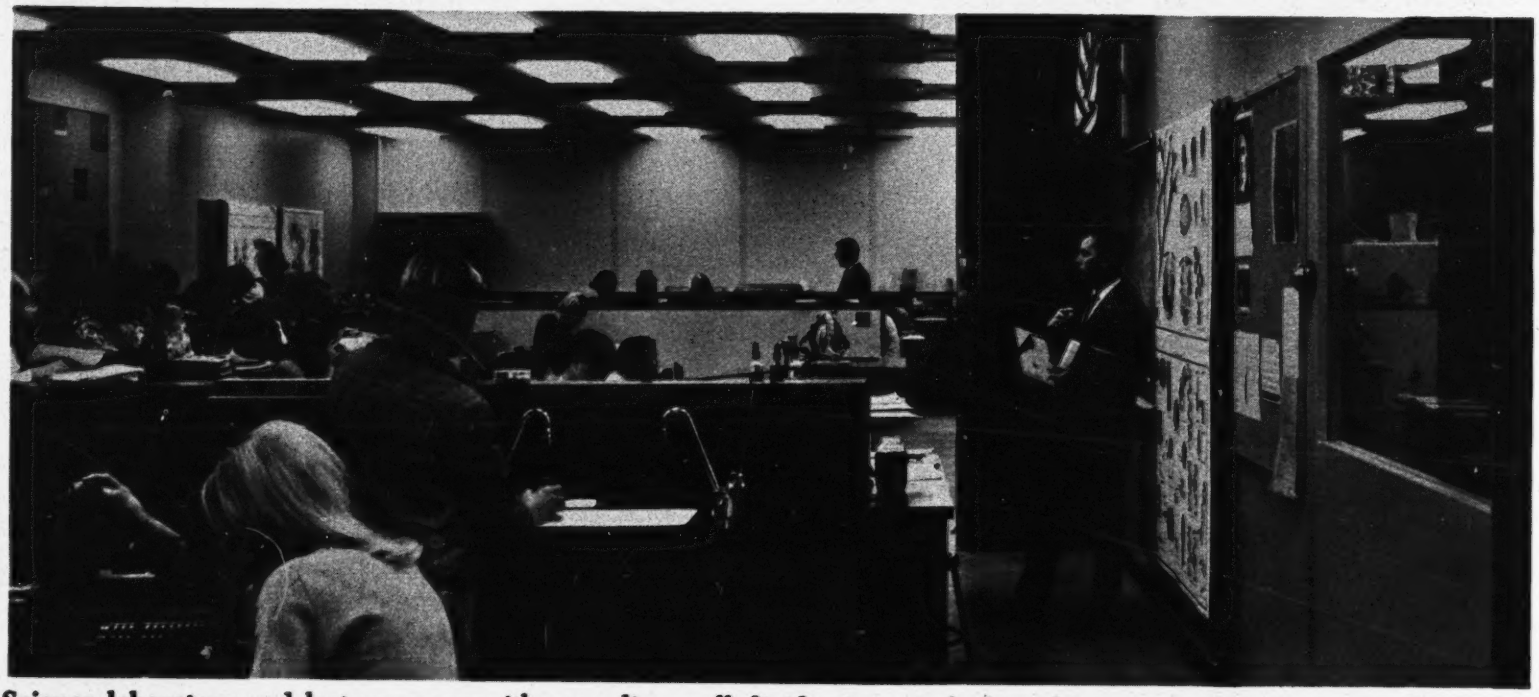
Economical Flexibility

The structural frame of Estancia High School is reinforced prestressed concrete. Concrete, a material too often maligned by such adjectives as "inflexible" and "frozen," is used here in a systems approach that achieves flexibility with significant economy. The ceiling is a series of deep pan-molded 5-foot-square coffers resting on columns cantilevered from their footings to eliminate fixed shear walls. The 5-foot grid described by the ceiling establishes the basic module adhered to throughout the building. In addition, the concrete pattern provides aesthetic detail finishing in the Great Court and the departmental subcourts, where the ceiling is left exposed. The architects, who are enthusiastic about using concrete in systems applications, point out that the more concrete is used and the more compactly it is used, the more efficient and economical its use as a building material becomes. Furthermore, concrete offers the significant economic advantage of meeting fire regulation requirements with far fewer sprinklers and fire doors and with less fire insulation than the use of other structural materials such as steel or wood would demand.

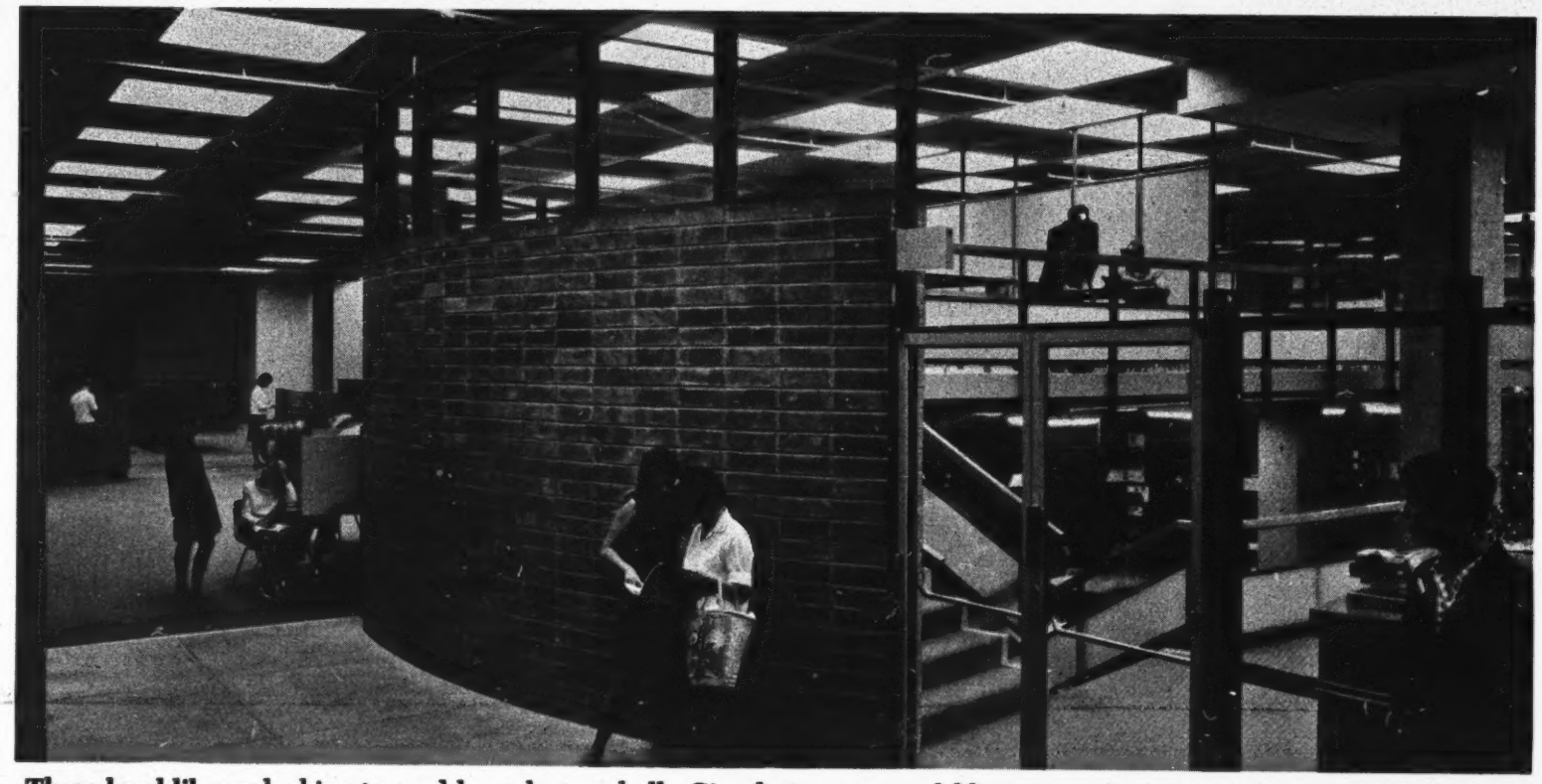
All interior walls at Estancia are non-load bearing and made up of demountable double steel panels.

Typical departmental court from just inside entrance. Court area is academic space that can be furnished and used to serve unique objectives of the department.

Science court from rear looking toward entrance into Great Court. Foreground shows edge of pit for informal small group discussion.



Science laboratory and lecture space with accordion wall divider is typical of teaching spaces in science complex.



Three-level library looking toward large lecture hall. Circulation area and library carrels (not seen) are on middle level. Carrels along exterior wall installed over carpeted area.

tion, since Estancia would be even more appropriate for areas with climatic extremes.

Carpeting Costs

Carpeting is an essential feature of the open plan concept which governs the design of this school. Both the architect and the school's administrators and teachers acknowledge that the school could scarcely function without it. Since this is probably the largest single school carpeting installation in existence today —there are about 2.5 acres of carpeted area—something deserves to be said of its cost. An analysis of carpeting costs submitted to the School Board by the architect furnishes at least one interesting statement of the economics of school carpeting in general. The following are the specific items the architect submits he would have had to include in lieu of carpeting:

Vinyl asbestos tile (71,124 sq. ft. @ 52¢)	$36,980
Movable walls (6, 050 lin. ft. @ $40)	24,200
Wood doors (61 each @ $80)	4,880
Door hardware (61 doors @ $105)	6,405
Return air louvers (61 each @ $35)	2,135
Acoustical treatment (20,444 sq. ft. @ 45¢)	9,200
Overhead and profit (12% of above)	10,050
Total additional cost without carpet	$93,850
Contract carpet cost (including overhead and profit)	$96,700

The conclusion of this analysis is that the net cost of the carpeting in Estancia High School over costs incurred had carpet not been installed is $2,850. A small price indeed for such an essential item. Carpet life was estimated in this analysis to be from 7 to 12 years, depending upon the location. The potential savings in maintenance costs claimed for this carpeting installation in this same analysis is as follows: 10 cents per sq. ft. per year as a minimum, 35 cents per sq. ft. per year as a maximum, and 15 cents per sq. ft. per year on the average.

First Year Experience

During its first year, Estancia High School had an enrollment of approximately 1,300 students. Next year will see a rise in enrollment to 2,000 students and graduation of the first senior class. The school will clearly accommodate more than 2,000 pupils comfortably and an eventual enrollment of about 2,500 is predicted.

Certain advantages of the Great Court design are immediately apparent. Not only is the corrosive salt laden air kept out, so is most of the dirt and debris common in schools where the student body passes in and out of the building several times a day. Littering is all but unknown and the students here take obvious pride in both the aesthetic values and the amenities incorporated in the interior design. Students circulating in the central court between classes move into the departmental courts without the rush and tumult common where students move from class to class down crowded hallways. Even the incidental visitor becomes aware that the instruction being carried out off the departmental courts includes certain aspects of team and cooperative teaching as a matter of course and as a natural consequence of the environmental design. Finally, it is apparent that although the school is now operating with a traditional curriculum and block scheduling, the potential offered by this facility for flexible scheduling and curriculum experimentation is almost limitless. In a profoundly educational sense, Estancia High School is indeed a school for all seasons.

Great Court view from midpoint between large lecture hall and library (background). Kiosk, one of several dotting Great Court, is for posting general notices and announcements.

The walls are installed under a suspended ceiling plenum which houses the utilities and electrical wiring. Not only can utilities be rerouted within the ceiling plenum to accommodate changes in wall placement, the plenum itself can be relocated without altering the basic structure, should the need to do so arise. In many areas, accordion and folding walls add instant flexibility to the rearrangement potential offered by the demountable steel panels.

Departmental Court Concept

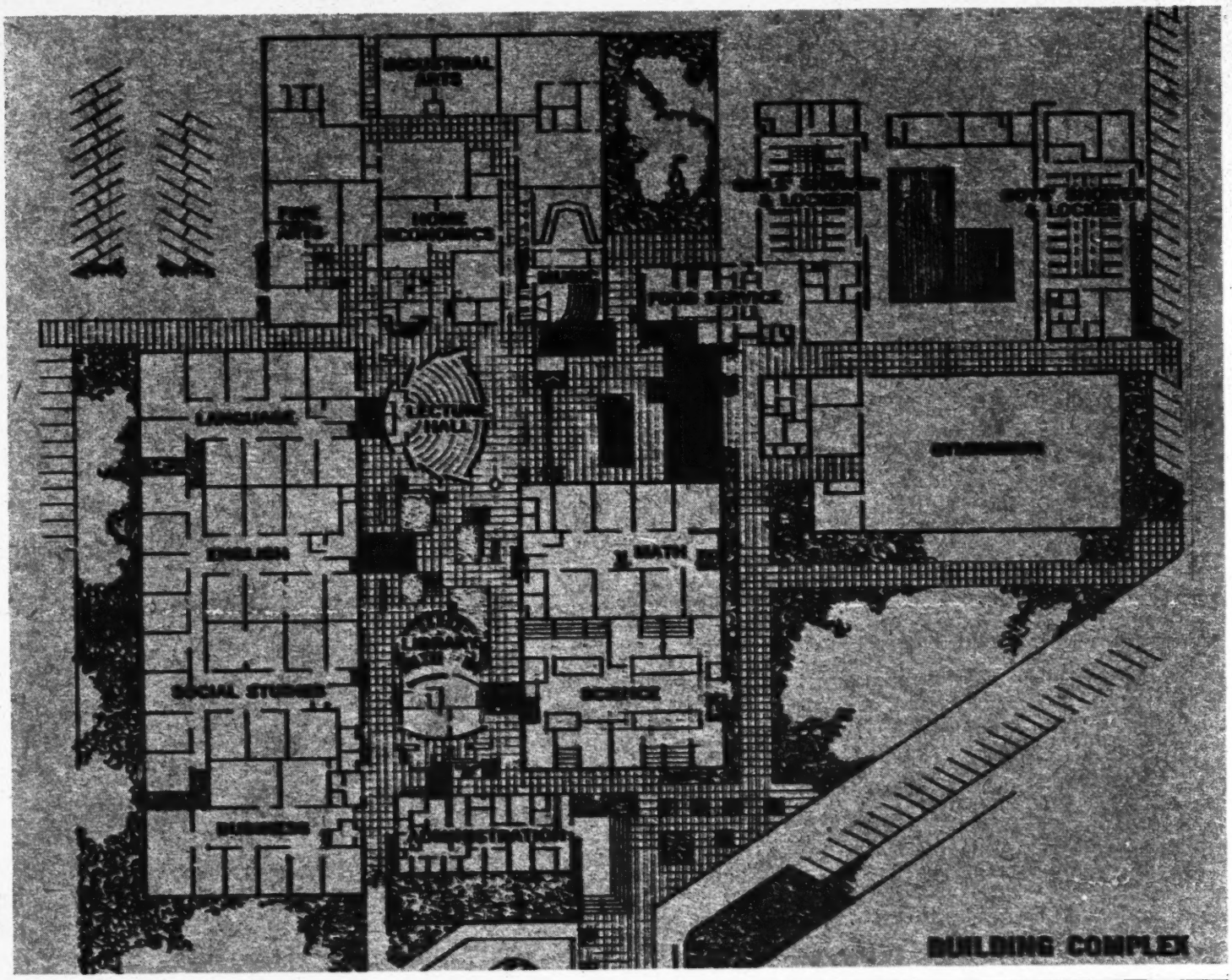
The court area of each department sets that department apart from the rest of the educational community by giving it a distinct physical identity to match its academic role. At the same time the overall design makes each department a more integral part of the general community. Since there is no through traffic, each department becomes an academic point of rest just off and open to the central community forum. The court of the arts and crafts department can be a gallery, that of the business department can reflect the environment of a typical business office, that of the science department can become a scientific museum and projects display, and so on. The departmental courts are also places for independent study, satellite departmental resource centers, and areas of immediate access for small or large group presentations and discussions. Further, each departmental court area has its own teacher's office and conference room to allow student counseling and teacher consultation to be carried out on a continuing "as needed" basis. Finally, every court and every instructional space around each court has all the audio-visual connections and outlets needed for A/V program origination or reception.

The courts and adjacent instructional areas are all carpeted (the demountable walls are installed over the carpet). All are also air-conditioned, a feature achieved with greater economy here because of the lack of exterior glass. Perhaps most interesting is the fact that temperature control is achieved in this school without a central heating system. Although a few electric heating panels are spotted in critical areas, the principal source of heat derives from the body temperature of the building inhabitants and the lighting. This despite the fact that the school is located on a plateau exposed to cold winds blowing off the Pacific.

Building Costs

The total contract cost for Estancia High School was $3,747,000, including $250,000 for 20 acres of site development, $227,000 for furniture and equipment, $90,000 for a swimming pool, and $7,000 for the audio-visual system components now installed. Estancia is not a California state-aided school, but figured on a state-aid basis, the square foot costs were $15.69 per sq. ft. for building costs and $18.50 per sq. ft. for project costs. For purposes of comparison, the costs for two schools built concurrently in the same county were as follows: $16.60 and $19.30 per sq. ft. for building and project costs, respectively, in the first instance, and $16.80 and $19.40 per sq. ft. for building and project costs in the second. The second example was a school built with state aid.

It would not be difficult to find secondary schools that cost a great deal more than Estancia but that offer a great deal less in terms of capacity, practicality, aesthetics, flexibility, or any other criteria. Certainly this school provides sound evidence that good planning and design are considerably more important factors in achieving an outstanding school plant than outstanding costs. Neither can the economies realized in this school's construction be attributed to the geographical and climatic advantages offered by its loca-



Estancia High School

Newport Harbor Union High School District
Costa Mesa, California
Architects: William Blurock and Associates

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